

This opinion is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* AVERY OSGOOD,  
MACK J. SCHERMER, and MARC SILVAGNI,  
APPELLANT

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Appeal 2007-4311  
Application 09/586,858<sup>1</sup>  
Technology Center 1700

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Decided: 15 October 2007

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Before CAROL A. SPIEGEL, SALLY C. MEDLEY, and  
MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

**A. Introduction**

Appellant ("Osgood") appeals under 35 U.S.C. § 134 from the final rejection of claims 1–4, 6–18, 102–133, which are all of the pending claims in the application. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM-IN-PART and REVERSE-IN-PART.

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<sup>1</sup> Application filed 5 June 2000. The real party in interest is listed as PerkinElmer LAS, Inc. (Appeal Brief filed 22 January 2007 ("Br."), at 1.)

The subject matter on appeal relates to methods of washing and drying sample depositing pins of a microarray spotting instrument.

According to Osgood, microarrays often have thousands or tens of thousands of target spots. Samples are retrieved from wells in reservoir plates by pins held in a "printhead" that holds 12 to 16 pins. Each pin is held so it contacts a single well of the reservoir plate, and each pin transfers a drop of that material to a single target spot. To avoid cross contamination of target spots and reservoirs, after each collection-dip and transfer, the pins are washed and dried. Completely spotting a 10,000 spot microarray can take many hours, of which a significant amount of time is said to be spent cleaning and drying the tips. Osgood seeks exclusive patent protection for methods that are said to reduce the amount of time necessary to wash and dry the pins of the microarray spotting instrument.

Independent claims 1, 102, and 118 are illustrative of the issues necessary to decide this appeal.

Claim 1:

A method of washing and drying a pin of a microarray spotting instrument, comprising:

- moving said pin to a given position;
- washing said pin while in said given position by  
*impinging a fluid depositing tip of said pin with at least one stream of wash fluid*; and
- drying said pin without substantially moving said pin from said given position.

(Br. at 12; emphasis added.)

Claim 102:

A method of washing and drying a pin of a microarray spotting instrument, comprising:

moving said pin to a given position;  
washing said pin while in said given position; and  
drying said pin without substantially moving said pin from said given position by flowing air past said pin, *said air being of lower humidity than air in an enclosure containing the spotting instrument*, said air having lower humidity *being introduced into said enclosure from outside* said enclosure.

(Br. at 14; emphasis added.)

Claim 118:

A method of washing and drying a pin of a microarray spotting instrument, comprising:

moving said pin to a given position;  
washing said pin while in said given position with a wash fluid *while applying a vacuum to remove wash fluid* previously applied to said pin; and  
drying said pin without substantially moving said pin from said given position, *said pin being dried by applying a vacuum to draw air past said pin*.

(Br. at 15–16; emphasis added.)

The Examiner has maintained the following rejections:

- (1) Claims 1–4, 6–18, 102–133 have been rejected under 35 U.S.C. § 102(a) in view of GMI<sup>2</sup>.

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<sup>2</sup> Genetic Microsystems, Inc., *Depositing Fluid Specimens on Substrates, Resulting Ordered Arrays, Techniques for Analysis of Deposited Arrays*, Int'l No. WO 99/367,760, published 22 July 1999. The named inventors are

(2) Claims 1–4, 6–18, 102–133 have been rejected under 35 U.S.C. § 102(e) in view of Montagu<sup>3</sup>.

The findings of fact set out in the Discussion are supported by a preponderance of the evidence of record.

## **B. Discussion**

The scope of our discussion is conditioned, in part, by the arguments Osgood has elected to raise against the Examiner's rejections. In particular, Osgood has treated the disclosures of GMI and Montagu as cumulative, stating that the references "are related and are cited by the Examiner for essentially the same disclosure." (Br. at 4.) Although Osgood made this remark in reference to claim 1 and the corresponding dependent claims, Osgood has not argued against anticipation by either reference separately. To the extent that Osgood makes specific arguments, those arguments are directed only to Montagu<sup>4</sup>: Osgood has not addressed any alleged deficiencies of GMI separately from Montagu. Furthermore, Osgood has made no attempt to remove either GMI or Montagu as prior art against the

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James W. Overbeck, Peter T. Flowers, Jean I. Montagu, Myles L. Mace, and Peter Honkanen.

<sup>3</sup> Jean I. Montagu, *Cleaning Deposit Devices that Form Microarrays and the Like*, U.S. Patent 6,428,752 B1, issued 6 August 2002, based on application 09/501,099, filed 9 February 2000.

<sup>4</sup> Montagu and GMI are "related" in that the disclosure of GMI is nearly (but not completely) incorporated in Montagu, although Montagu describes cleaning and drying procedures in more detail. J.I. Montagu is a common inventor, and Affymetrix, the assignee of Montagu, acquired GMI, the assignee of GMI, in 2000 (Corporate time line at <http://www.affymetrix.com/corporate/history/index.affx> .)

claims of the present application. Finally, although Osgood raises separate arguments as to each of independent claims 1, 102, and 118, it does not argue for the separate patentability of any of the claims that depend from the independent claims. Arguments not made in the principal brief are waived. 37 C.F.R. § 41.37(c)(1)(vii).

Accordingly, we shall address only claims 1, 102, and 118; and we shall focus our attention on Montagu.

Claimed subject matter is anticipated if "each and every limitation is found either expressly or inherently in a single prior art reference." *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1374, 58 USPQ2d 1508, 1512 (Fed. Cir. 2001).

The Examiner finds that Montagu and GMI disclose all the limitations of the claimed methods of washing and drying pins of a microarray spotting instrument. (Answer at 4–6, citing Montagu; Answer at 3–4, citing GMI.)

#### Claim 1

Osgood finds that "neither reference discloses (or even suggests) 'washing said pin . . . by impinging a fluid depositing tip of said pin with at least one stream of wash fluid.'" (Br. at 6.) According to Osgood, Montagu discloses directing fluid from an annular nozzle at the body of the pin, not the tip of the pin. (*Id.*) Osgood finds that "[t]he fluid directed at the body of the pin may run down the length of the pin toward the tip, but fluid from the nozzle does not impinge the fluid depositing tip of the pin, as specified in claim 1." (*Id.*)

We are not persuaded. The critical limitation of claim 1, on which Osgood relies, reads in full:

washing said pin while in said given position by impinging a fluid depositing tip of said pin with at least one stream of wash fluid.

Osgood, however, has not directed our attention to any definition in the specification that limits the term "stream of wash fluid" to a free jet of wash fluid. Although the figures appear to embody such "streams" (*see, e.g.*, Figures 9–13), they are merely exemplary. Moreover, Osgood has not directed our attention to any definition of the term "tip" in the specification. It appears, however, that the term "tip" is not limited to the geometric apex of the pin. The specification indicates that "[t]he wash fluid streams are directed to strike the pin tip at or near the root of the pin slot 130 [sic: 30 – see Figure 3] when a pin is inserted in the tube." (858 specification at 13:23–25.)

Furthermore, Osgood states that the invention is rather general, and that "the drawings and description are to be regarded as illustrative in nature and not in a restrictive or limiting sense with the scope of the application being indicated in the claims." (Specification at 9:16–21.) In any event, it is hornbook law that limitations from examples in the specification are not to be read into the claims. As the Supreme Court explained over a century ago, "if we once begin to include elements not mentioned in the claim, in order to limit such claim . . . , we should never know where to stop." *McCarty v. Lehigh Valley R. Co.*, 160 U.S. 110, 116 (1895).

One definition of the word "stream" is "a steady current of a fluid."<sup>5</sup> Even if Osgood's characterization of Montagu is accurate—a matter we need not and do not decide—we hold that a steady current of fluid that "run[s] down the length of the pin" constitutes a "stream." When that stream contacts or pushes against the tip of the pin, it "impinges" the tip of the pin,<sup>6</sup> giving the term "impinge" the broad and reasonable dictionary definition provided by the Examiner (Answer at 5). Similarly, even if Osgood is correct that (*see* Figure 7, reproduced *infra*) the ring **14'** prevents the fluid from nozzle **200** from directly impinging pin tip **12d** (another matter that we need not and do not decide), wash fluid running down the pin to the tip "impinges" the tip and fully meets that limitation of claim 1. In Montagu's words, "the nozzle flows [are] directed to dislodge retained fluid, to clean or dry the respective parts." (Montagu at 4:41–43; GMI at 10:21–23.) These conclusions are not inconsistent with Osgood's characterizations of its own invention, described *supra*.

The rejection of claim 1 and claims dependent thereon under § 102(e) in view of Montagu are AFFIRMED. There being no separate argument regarding GMI, the rejection of these claims under § 102(e) in view of GMI are also AFFIRMED.

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<sup>5</sup> The American Heritage Dictionary, 2d college ed. (1982).

<sup>6</sup> We decline to credit the Examiner's conclusion, based on the drawings, that the jet must impinge the tip of the needle (Answer at 7–8). Absent an indication that the drawings are to scale and are precise as to all relative dimensions, drawings are merely illustrative guides, not definitions, to persons skilled in the art.

Claim 102

Osgood argues that the Examiner erred in rejecting claim 102 as anticipated in view of Montagu. (Br. at 7-9.) In particular, Osgood finds that "[t]here is no teaching or suggestion that the air used for drying be of a lower humidity and be introduced into an enclosure containing the spotting instrument." (Br. at 8.) Osgood argues further that Montagu "teaches away from introducing air into the enclosure by stating that the enclosure is used to provide a controlled environment." (Br. at 8-9, emphasis omitted.) Osgood raises no other objection to the Examiner's rejection.

The record does not support Osgood's findings or conclusions. The critical limitation of claim 102 that Montagu supposedly lacks reads:

drying said pin without substantially moving said pin from said given position by flowing air past said pin, said air being of lower humidity than air in an enclosure containing the spotting instrument, said air having lower humidity being introduced into said enclosure from outside said enclosure.

(Br. at 14.) In other words, the spotting pin is dried by flowing external air that is drier than the air inside the spotting enclosure over the spotting pin.

The Examiner identified passages at Montagu column 4 (GMI page 10) and at Montagu column 10 (GMI page 43) that are particularly relevant. The references teach in most relevant part:

Preferably the cleaning system has a nozzle for directing a flow of air past the annular structure, preferably a cleaning or drying station comprising a circular nozzle [is] constructed to discharge a conical flow of fluid, *preferably compressed air . . . or heated air* against a deposit device . . . preferably the deposit device being a pin or pin-like structure surrounded by a mobile reservoir in the form of an annular member capable of holding a supply of fluid by surface tension effects, the nozzle flows



directed to dislodge retained fluid, to clean or to dry the respective parts.

(Montagu at 4:32–43; GMI at 10:11–22. Emphasis added. Text in square brackets is exclusively in Montagu.) The references teach further:

As shown [in Montagu Figure 7, GMI Figure 9G], nozzle **200** is associated with a secondary air path **204** to enable nozzle flow to induce a flow of secondary air when desired. . . . Following washing, an air current from the nozzle, supplemented by induced air flow **204**, can dry both pin and ring, in which case the air streams may be heated.

(Montagu at 10:19–21 and 32–34; GMI at 44:3–5 and 16–18.)

{Figure 7 is shown below:}<sup>7</sup>

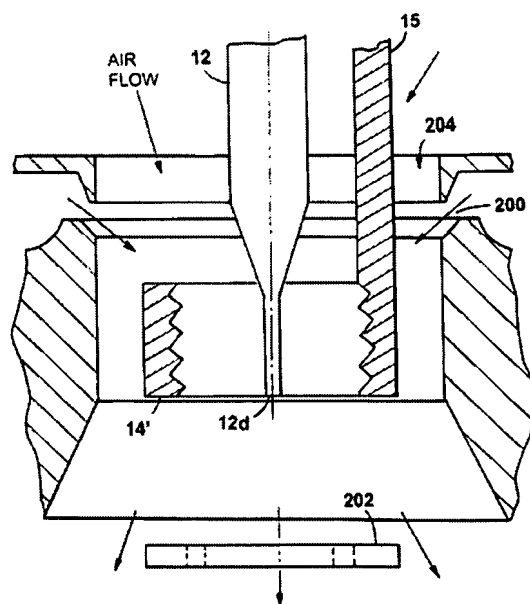


FIG. 7

{Montagu Figure 7 is said to show an individual cleaning station}

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<sup>7</sup> The text in curly braces preceding and following the Figures is provided to ensure compliance with section 508 of the U.S. Rehabilitation Act for publication of this Decision on the USPTO website pursuant to the Freedom of Information Act. It is not part of the Decision.

Montagu, in particular, teaches cleaning stations that are distinct from the resupply station and the depositing area. (Montagu at 2:27–30.) The cleaning station is labeled "CL" in Figures 1, 2, and 6. (*Id.* at 14:56–58.) Montagu teaches that heated air for drying may be provided. (*Id.* at 14:64 and at 15:3–5.) According to Montagu, the supply of air can include a compressor **90** or a nitrogen tank. (*Id.* at 14:64–66, referring to Figure 8, which is reproduced *infra*.)

Considering Figure 8, which is reproduced *infra*, the compressor (or a nitrogen tank) introduces air flow "into said enclosure from outside said enclosure," as required by claim 102. Moreover, assuming that such external flows of gas are not less humid than the ambient air in the sample spotting region ignores Montagu's teaching that "heated air for drying" be used, as well as the common sense and practical laboratory abilities of the ordinary skilled worker in this art. We find that the ordinary worker must be capable of handling delicate instruments and delicate, humidity sensitive samples comprising biological molecules such as nucleic acids (*e.g.*, Montagu at 1:18–27 and at 17:58–18:3; GMI at 1:6–12 and at 60:29–61:16.) Accordingly, using air less humid than the air in the sample region to dry sample pins would have been routine and automatic. Requiring express disclosure of the routine is contrary to the function of the patent disclosure, which is directed to those of ordinary skill in the art: it is neither a primer for the novice nor a production document for the workplace manager.

Accordingly, the rejections of Claim 102 and claims dependent thereon under § 102(e) in view of Montagu are AFFIRMED. There being no separate argument regarding GMI, the rejections of these claims under § 102(a) in view of GMI are also AFFIRMED.

Claim 118

The critical limitation of claim 118 is:

drying said pin without substantially moving said pin from said given position, *said pin being dried by applying a vacuum to draw air past said pin.*

The Examiner finds that Montagu discloses a vacuum at column 10, lines 18–20. (Answer at 5.) That passage, expanded to provide context, reads in relevant part:

The multipurpose cleaning station illustrated in FIG. 7 is sized to receive deposit pin **12** and supply ring **14**. It has an annular nozzle **200** directed inwardly against the pin and ring to subject the parts to a conical flow from fluid sources such as compressed air, pressurized liquid and aerosols. The flow is directed past the parts **12**, **14** to a trap having disposable filter **202** that intercepts material being removed from the parts. The trap may be associated with a vacuum pump. As shown, nozzle **200** is associated with a secondary air path **204** to enable nozzle flow to induce a flow of secondary air when desired.

(Montagu at 10:11–21.)

According to the Examiner, "[t]he purpose of the vacuum pump is to create a vacuum so that when a pin is washed the vacuum removes the wash fluid previously applied to the pin ([Montagu] claim 1). Drying the pin is accomplished by an air current from the nozzle, supplemented by induced air flow 2% [sic: **204**?] (col. 10, lines 11-34.)" (Answer at 6.)

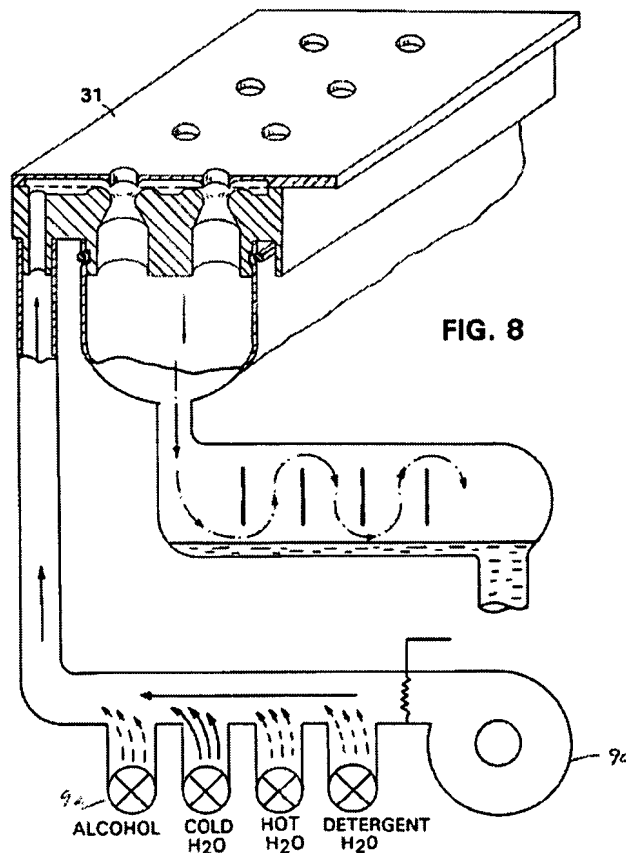
Osgood argues that neither Montagu nor GMI "disclose or suggest using the vacuum to dry the pin by drawing air past the pin." (Br. at 10.) Osgood finds, instead, that "[t]he references only teach drying the pin by discharging compressed air from the nozzle to the pin." (*Id.*) In response, the Examiner finds that "[t]he addition of a drying air to the chamber creates

a partial suction (vacuum) in the chamber that aids in drying the pins and pulling liquid away from the pins to the collection area. Therefore the prior art teaches this limitation." (Answer at 9.)

The difficulty with the Examiner's rejection is that neither explanation of how the drying takes place meets the limitations of claim 118. In the first explanation, based on Montagu column 10, lines 11–34, the Examiner finds that "[d]rying the pin is accomplished by an air current from the nozzle, supplemented by induced air flow 2% [sic: 204?]" (Answer at 6, citing Montagu at 10:11-34.) This explanation does not explain how a vacuum is applied "to draw air past said pin." In the second explanation, the Examiner finds that "[t]he addition of a drying air to the chamber creates a partial suction (vacuum) in the chamber that aids in drying the pins and pulling liquid away from the pins to the collection area." (Answer at 9.)

What appears to be going on in Montagu can be most readily understood by considering Montagu Figure 8.

{Montagu Figure 8 is shown below:}



{Montagu Figure 8 is said to show a cleaning station.}

Air from a compressor 90 or a nitrogen tank is heated by the resistance heater and passes along the tube to a manifold capped by plate 31. The pins are inserted through the holes in plate 31 and hot air passes through nozzle 200, shown in Figure 7, which directs the hot air along the pins. The stream of hot air draws air by the Venturi effect from the enclosure through the holes in plate 31, and that air also passes over the pins.

During prosecution, “the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s

specification.” *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). On the present record, it is not reasonable, in our judgment, to say that air that is drawn through holes in plate **31** of Figure 8 is air that dries the pin by being drawn past the pin by applying a vacuum as required by claim 118. First, the amount of that air appears to be miniscule compared to the amount of air blown along the pin compressor (or tank) **90**. The contribution of the air drawn in from the working area, which is more humid than the hot dry air blown past the pin, would seem to be, comparatively speaking, to moisten the pin. Second, the vacuum (suction) is created upstream from the pin in the arrangement shown in Montagu Figure 8. In contrast, the claim recites that the air is drawn past the pin by the vacuum, which requires a downstream position of the pump relative to the pin. Third, the passage in Montagu cited by the Examiner states that it is the nozzle **200** that is associated with a secondary air path **204** to enable a flow of secondary air: no mention is made of the role of the optional vacuum pump associated with the trap.

The Examiner has not directed our attention to any other means of providing washing fluids and drying gases to the pin, other than as shown in Figure 8. Accordingly, we find the evidence against anticipation of drying a microarray depositing pin "by applying a vacuum to draw air past said pin" outweighs the evidence for anticipation presented by the Examiner.

The rejection of Claim 118 and claims dependent thereon under § 102(e) in view of Montagu is REVERSED, as is the rejection of these claims under § 102(a) in view of GMI.

**C. Summary**

In view of the record and the foregoing considerations, it is:

ORDERED that the rejection of claims 1–4, 6–18, and 102–117 under 35 U.S.C. § 102(a) in view of GMI is AFFIRMED;

FURTHER ORDERED that the rejection of claims 1–4, 6–18, and 102–117 under 35 U.S.C. § 102(e) in view of Montagu is AFFIRMED;

FURTHER ORDERED that that the rejection of claims 118-133 under 35 U.S.C. § 102(a) in view of GMI is REVERSED;

FURTHER ORDERED that that the rejection of claims 118-133 under 35 U.S.C. § 102(e) in view of Montagu is REVERSED;

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART and REVERSED-IN-PART

cc (via U.S. Mail):

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